
Space Weather Forecast

Issued on Saturday, 27 May 2023 at 01:31 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: R1/R2 radio blackouts likely.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate with one Moderate-class flare from a large and magnetically complex region in the southeast quadrant, with has a highly concentrated magnetic field in the central portion of the region. A smaller sunspot group in the northwest is becoming increasingly complex with the opposite polarity spots becoming more compact. This latter region appears to have produced a CME following a Common-class flare later on 26 May. This will be analysed once further imagery becomes available. Remaining regions are either weak, fading or stable. A further CME observed leaving the south of the Sun on coronagraph imagery late on 26 May will be assessed once sufficient satellite imagery becomes available.

Solar Wind / Geomagnetic Activity: Solar wind parameters show slight elevated winds edging towards ambient levels as a fast solar wind eases. The total magnetic field strength was weak, with the north-south component weak and variable. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate solar activity, forecast, mainly due to the configuration and development of the complex region in the southeast quadrant but with an increasing risk from a smaller region in the northwest quadrant.

Solar Wind / Geomagnetic Activity: A weak CME which left the Sun on 22 May may glance the Earth during 27 May, but with low confidence. A further CME which left the Sun on 25 May may arrive at Earth either 29 or 30 May, but again confidence is low. Otherwise a fast solar wind is expected to ease through 27 and 28 May, with a further fast solar wind then expected to connect on 29 or 30 May and could coincide with the possible CME arrival. Mainly Quiet with some Unsettled intervals possible throughout the period. Possible Active or G1/Minor Storms on 27 May due to the potential glancing CME. A further chance of G1/Minor Storms on 29 or 30 May.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to be at background with solar radiation storms unlikely to occur.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	1	20	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	Yes	60	60	60	60
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)